REQUEST FOR PROPOSAL

TO CREATE A SERIES OF GIS DATASETS TO DEVELOP BASE MAP LAYERS FOR STATEWIDE EMERGENCY RESPONSE PURPOSES

PROJECT: DEM 04-01

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DIRECTOR

DIVISION OF EMERGENCY MANAGEMENT

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Proposals must be received at the Division of Emergency Management by May 5, 2004 at 2:00 PM

Mail to the Attention of:

Doug Friez, Director, North Dakota Emergency Management

REQUEST FOR PROPOSAL
North Dakota Division of Emergency Management
Project Specifications for
Statewide Emergency Response Dataset

1. Introduction

The North Dakota Division of Emergency Management (DEM) is seeking a vendor to create a series of GIS base map layers to be utilized by the State Emergency Manager for 911, emergency management, homeland security issues, and first responder routing throughout the state. The series of integrated GIS map layers include but are not limited to Federal/State/County/Township Roadway Centerlines, Responder Zones, and Responder Locations. In response to this document, vendors must submit a detailed proposal for the creation of the GIS layers herein, as specified by ND DEM.

Failure to meet any one of the requirements stated in this RFP will be considered adequate grounds for rejection of the proposal.

2. Background Information

Presently the DEM is responsible for 911 dispatch services to 22 counties and is the backup for other (but not all) counties within the state. See http://www.state.nd.us/dem/images/911map.jpg for more information. The dispatch center is using Seatol to help in dispatching first responders. DEM does not currently have statewide GIS datasets for emergency response.

Currently there are several disparate sources of roadway centerline data available for use in a GIS environment.

The North Dakota Department of Transportation (NDDOT) maintains several centerline datasets. The first is a roadway centerline layer of all State and Federal highways. The data was collected using a GPS unit. This layer is used to build a route system (linear referencing) for inventory display and management. The highway layer is maintained in statewide coverage. The other road layers consist of centerline data that includes county, township, and city roads. The level of detail is down to roads (section lines and trails) that are visually identifiable. These layers consist of 53 separate tiles accessed through Map Librarian. The county data is maintained on a 6-year cycle. Each year the NDDOT flies 1/6 of the state and verifies surface types, new roads/trails, and any road abandonments. There is also a system in place for cities to send the NDDOT their updated datasets. The NDDOT will integrate these updates into their own datasets. The county base map data has a stated accuracy of > 3 meters. See http://www.state.nd.us/dot/gisdata.htm for explanations of NDDOT's attributes.

Approximately 23 counties already have complete roadway centerline datasets along with 13 that are in the process of collecting them. The data collected is down to the county road level. The stated accuracy ranges from sub-meter to > 3 meters. 14 counties have sub-meter data and the balance have data that is greater than sub-meter. The layers were either created by the local government entities or by utilizing a consultant. The majority of these are a combination of using GPS and heads-up digitizing. All are maintained separately by individual counties with varying types and levels of attribution.

Currently there are not any statewide layers for either the Emergency Responder Zones or Responder Locations. Approximately 28 counties have completed these layers or are in the process of creating them.

Over the past 2 years the State of North Dakota has maintained and expanded a read-only centralized GIS database (State Hub). The Hub utilizes ESRI's SDE (Spatial Data Engine) in conjunction with an Oracle database to serve up the data to state agencies. The majority of the layers available on the Hub cover the entire state. One of the goals of the Hub is to add ever increasingly more accurate data that can be used by as many state agencies as possible. In this context, accuracy refers to spatial data aspects and the associated feature attributes. See http://www.state.nd.us/gis/ for more information on the state Hub.

3. General Scope of Work

It is the intent of this document to establish the specifications, minimum requirements, terms and conditions for the procurement and creation of multiple GIS layers for use in a CAD software package for the Division of Emergency Management (DEM). It is a primary goal of the DEM to obtain high quality, highly accurate GIS layers as well as a qualified, conscientious vendor to provide written procedures for updating statewide seamless layers within a distributed environment. (An example of this updating would be local 911 emergency managers collecting data and pushing the changes to a centralized editing environment.) The GIS layers will be a complete statewide seamless product, including documentation, metadata, and testing results.

A consideration when building these layers is the philosophy of "Build Once, Use Many". Although the primary user of this data will be Emergency Management, other government entities including city, county, and state need to be taken into consideration. Additional attributes may be included to accommodate these users. The contractor must liaison with county emergency managers and other political subdivisions as identified by ND DEM to obtain information and accommodate those users within the scope of this project as determined by DEM. Political subdivisions will be expected to contract separately for any work determined to be outside the scope of this project.

The roadway centerline layer will include all visually verifiable Federal/State/County/Township roads and trails within the State of North Dakota, as specified in Section 8 (A) of this RFP. The roadway centerline layer will also include roads from incorporated cities with a population of 2500 or less. All lines collected must have a horizontal positional accuracy of ± 0.5 meters or less of the actual roadway centerline. Additionally, the contractor must accurately collect the vertical position of the roadway centerline. Each segment must be accurately attributed with street names and addresses for proper address matching within a CAD (Computer Aided Dispatch) application.

Any current roadway centerline layers maintained by other entities (including counties but not specifically limited to them) may be utilized in the creation of the road layer. If other sources of centerline data are to be considered they must meet or exceed the accuracy requirements set forth in section 8A. These datasets must be rigorously tested and be accompanied by an accuracy statement before they can be utilized.

The responder zone polygon layer will include all local Emergency Service Zones (ESZ) throughout the state along with accurate attribution, as specified in Section 8 (B) of this RFP.

The responder location point layer will include all local first responder locations (and type of responder) throughout the state, as specified in Section 8 C of this RFP. All responder locations must be associated with their appropriate zone. If a responder location is responsible for more than one zone there will be multiple points per location.

4. Approximate Total Features and Extents by Layer

A. Centerline Miles
   - State and Federal 8,400
   - County System 19,000
   - Other Rural Roads 56,500
   - Trails 19,900
   - Cities (Pop. <=2500) 2,600

B. 1000 Responder Zones as provided by the County Emergency Managers.
C. 500 Responder Locations as provided by the County Emergency Managers.

5. Current GIS Technology Environment

A. Windows 2000 Professional Edition
B. ESRI ArcView GIS 3x
C. ESRI ArcInfo 8x
D. ESRI ArcMap 8x
E. ESRI IMS 4.0.1
F. ESRI ArcSDE 8.3 running Oracle 9i and SQL Server 2000
G. ESRI Map Librarian
H. Data maintained in ArcInfo coverages

Additional software may be purchased (but not guaranteed) to utilize these layers in a CAD application.

6. Current 911 Dispatch Technology

A. Orion MapStar - http://www.peinc.com/
B. Positron - http://www.positron911.com/
C. R3GIS - http://www.bullberrysystems.com/
D. Seatol
E. Think Map http://www.wthengineering.com/

7. Standards and Requirements

A. Seamless statewide roadway centerline layer positionally (horizontally) accurate within ± 0.5 meters.
B. Seamless statewide roadway centerline layer positionally (vertically) accurate within ± 0.5 meters.
C. Seamless statewide responder zone layer.
D. Seamless statewide responder location layer.
E. Establish written procedures for updating layers in a distributed environment.
F. Spatially accurate for responder routing.
G. Accurately attributed for as many users as possible.
H. Layers to be utilized in GIS CAD applications.
I. Project coordination and involvement with 911 coordinators and emergency managers will be a critical component of a successful mapping project.
J. Broadly accepted by GIS users (based upon input from state agencies and political subdivision users).
K. Easily utilized by county level 911 coordinators. This includes being able to stitch together spatially different city centerline datasets.
L. The mapping/reporting software must run on a Windows 2000 Professional Edition operating system or higher.
M. The layers shall be delivered in an ArcInfo Coverage format. All layers must be able to be utilized and edited by ESRI mapping software.
N. Layers shall be in Geographic Coordinate System, North American Datum of 1983 (NAD 83).

8. Layer Requirements

A. Roadway Centerline Layer

All visually verifiable roadway centerlines will be captured at a horizontal accuracy of ± 0.5 meters or less of the actual centerline. This includes all Federal, State, County, and Township roads and trails within North Dakota. An excellent reference as to the level of detail of the roadway centerlines that need to be captured are the county base maps produced by the NDDOT. The roadway centerline layer will also include roads from incorporated cities with a population of 2,500 or less. City streets (for those cities that have a population greater than 2500) are excluded from the roadway centerline layer except for when any Federal, State, County, or Township road can be logically followed through the town proper. Additionally, the contractor must accurately collect the vertical position of the roadway centerline. Each segment must be accurately attributed with street names and address for proper address matching within a CAD (Computer Aided Dispatch) application.

The design of this layer needs to take into consideration that local government agencies will be adding their city centerline layers to this dataset. The city data will be at varying degrees of accuracy.

Any current roadway centerline layers maintained by other entities (including counties but not specifically limited to them) may be utilized in the creation of the road layer. If other sources of centerline data are to be considered they must meet or exceed the accuracy requirements set forth in this section. These datasets must be rigorously tested and be accompanied by an accuracy statement before they can be utilized.

The minimum requirements for the roadway centerline layer attribution should closely follow the GIS specifications outlined in the NENA Recommended Formats & Protocols For ALI Data Exchange, ALI Response & GIS Mapping document. See http://www.nena9-1-1.org/9-1-1TechStandards/Standards_PDF/NENA%2002-010.PDF for more information.

The following tables describe suggested attribute names and field lengths (see Exhibit A & B). The expanded number of fields takes into consideration other possible users of the layer. Please note that the use of a domain on selected fields is not optional.

All field names must be 10 characters or less.

Exihibit A-1

Roadway Centerline Layer Fields

Field	Description	Data Type	Length	Domain
L_ADD_FROM	Left low address range	Decimal	10	
L_ADD_TO	Left high address range	Decimal	10	
R_ADD_FROM	Right low address range	Decimal	10	
R_ADD_TO	Right high address range	Decimal	10	
PRE_DIR	Leading street direction prefix.	String	2	YES
PRE_TYPE	Valid Street Abbreviation.	String	4	YES
ST_NAME	Valid service address of the Calling Party Number. Contains only the number or name portion of each street segment. The "Main" in "Main St." or "85" in "US Hwy 85"	String	60	
SUF_TYPE	Valid Street Abbreviation.	String	4	YES
SUF_DIR	Trailing street direction suffix.	String	2	YES
FULLNAME	The entire name of street	String	60	
ESN_LEFT	The ESN zone/number that the left side of the street lies in.	Decimal	5	
ESN_RIGHT	The ESN zone/number that the right side of the street lies in.	Decimal	5	
L_CITY	Valid service community name as identified by the MSAG on the left side of the street.	String	35	
R_CITY	Valid service community name as identified by the MSAG on the right side of the street.	String	35	
L_CNTY	FIPS code for county on left side of street.	Decimal	3	YES
R_CNTY	FIPS code for county on right side of street.	Decimal	3	YES
STATE	FIPS Code designated for state.	Decimal	2	YES
ONEWAY	One way road classification.	String	1	YES
ROADSTATUS	Indicates whether the road is open or closed to traffic	String	1	YES
SPEED	The speed limit of the road segment	Decimal	6	
MINUTES	Minutes it takes to traverse the line based on speed limit and line length.	Decimal	11.3	
LENGTH	Line segment length in miles	Decimal	11.3	
SURF_TYPE	Designates road surface.	String	30	YES
RD_OWNER	Identifies the road owner that best represents the highway owner irrespective of whether agreements exist for maintenance or other purposes.	String	3	YES
DATA_SRCE	Indicates Original Source of Data or any subsequent updates.	String	15	
ACCURACY	Indicates accuracy of data based ± XX meters from actual centerline.	Decimal	3.1	
UPDATED	Date of last update. Format: CCYY-MM-DD	String	10	

Exhibit A-2

Roadway Centerline Layer Domain Codes

Field	Domain
PRE_DIR	Valid Entries: N S E W NE NW SE SW
PRE_TYPE	Valid Street abbreviation as defined by US Postal Service Publication 28.
SUF_TYPE	Valid Street abbreviation as defined by US Postal Service Publication 28.
SUF_DIR	Valid Entries: N S E W NE NW SE SW
ONEWAY	Blank = No X = Opposite Direction of arc Y= In direction of arc
ROADSTATUS	O = Open {Blank} = Open C = Closed
STATE	Federal Information Processing Standards Publication 5-2.
L_CNTY	Federal Information Processing Standards Publication 6-5.
R_CNTY	Federal Information Processing Standards Publication 6-5.
SURF_TYPE	To be determined by North Dakota 911 Assoc. or by following NDDOT's County Base Map Codes. They are as follows: • Concrete – Concrete Surface • Paved High Type Bituminous – 7" and over base and surfacing with a minimum of 1" surface • Paved Low Type Bituminous – Under 7" base and surfacing with a minimum of 1" of surface • Gravel – Gravel surfaced • Graded & Drained – A road on natural earth aligned and graded (with ditches) • Unimproved Road – Dirt surfaced with maintenance (no ditches) • Trails – Clearly defined wheel tracks with no maintenance (no ditches) • Seldom Used Trail – Primitive road with seasonal wheel tracks (no ditches)
RD_OWNER	To be determined by North Dakota 911 Assoc. or by following NDDOT's County Base Map Codes. They are as follows: • U – US Highway • I – Interstate • S - State • B - Business • P – Private • BIA – Bureau of Indian Affairs • A – Forest Service • F – County Federal (Federally funded county road) • C – County • M – Municipal

Roadway Centerline Data Capture Requirements

- The capture of roadway centerlines by GPS (± 0.5 meters accuracy) which form the basis of the mapping system must be overseen by a registered land surveyor, licensed to practice land surveying in North Dakota.
- The capture of road/street centerline data must be completed utilizing high accuracy (mapping grade or better) GPS equipment, and corrected using post-processing techniques to assure positional accuracy of ± 0.5 meters or better. Road centerlines will be collected and exported as line features (collection as point features will not be accepted).
    - All horizontal data will be provided in **NAD 83** datum coordinates (Latitude, Longitude), with a minimum field width of 10 digits (xxx.xxxxxxx).
    - All vertical data provided will be in NAVD 88 datum.
- Roadway centerlines must be post-processed utilizing Trimble Geomatics Office software.
- Industry standard software such as ArcInfo must be used for processing GPS-collected roadway centerline data. Processing will include cleaning and snapping of centerlines, as well as creation of intersections and overpasses/underpasses.
- Roadway centerlines must not contain any line overlaps, bowties, offsets or dangling arcs. All line elements will snap to each other and be broken at intersections, city, county, and state boundaries.
- All roadway centerlines will be edge matched across county/city jurisdiction boundaries to ensure contiguity statewide.

Horizontal and Vertical Accuracy Verification

For each county within North Dakota, the vendor must provide an accuracy statement that contains the relative positional error radius and a confidence level.

Spatial accuracy verification methodology shall follow the National Standard for Spatial Data Accuracy (NSSDA) testing methodology (FGDC-STD-007.3-1998). The roadway centerline layer must be tested against a point layer that consists of a minimum of 20 road intersection control points taken within each county using GPS. These locations must be distributed proportionally throughout the county to reflect geographic area of interest and distribute any error. Each control point must be monumented with a P-K (a hardened masonry nail with a central dimple) or MAG nail (magnetized nail that is detectable even if buried). The position of the 20 control points will be determined by one or a combination of the following methods:

1. A minimum of two (2) hours of data collection on each control point. The GPS receivers must be carrier phase using L1 and L2 signals. The data would be sent to NGS for processing using OPUS (PAGES software) and the NDGPS towers. A good solution must have the following minimum elements:
    a. Use the Rapid Ephemeris
    b. Overall RMS must be 15 cm or less
    c. Use 95% or more of observations
    d. Use 90% or more for number of fixed ambiguities
    e. The peak to peak errors must be 15 cm or less
2. Doing a STATIC network using carrier phase GPS receivers with a minimum of one (1) hour of data collected on each control point. This data would be post-processed with Trimble Geomatics Office software (or equivalent).
3. Real-time-kinematic (RTK) survey techniques (a minimum of two (2) minutes occupation time on each control point). The GPS receiver must be tracking at least five (5) satellites and have real-time radio links between the reference GPS carrier phase receiver (Base) and the remote GPS carrier phase receiver (Rover). The reference GPS receiver must occupy known points that have 3-D coordinates from existing HARN or NDGPS stations.

Using the National Standards for Spatial Data Accuracy, the datasets must test within ± 0.5 meters horizontal and ± 0.5 meters vertical and both at a 95% confidence level. An excellent tool is the Positional Accuracy Handbook (http://www.mnplan.state.mn.us/pdf/1999/lmic/nssda_o.pdf) that was developed by the Minnesota Planning Land Management Information Center.

Address Matching Requirements
The final delivered roadway centerline layer shall result in a 100% call to address database match rate when utilizing each counties' MSAG (Master Street Address Guide) address list. Failure to reach the goal of 100% match rate shall indicate that the contractor must continue to reconcile, verify and match address data by various methods of fieldwork, database processing, and QA/QC.

Geocoding Requirements
The final delivered roadway centerline layer shall result in a 95% to call address database match rate when utilizing each counties' ALI (Automatic Location Identification) database. Failure to reach the goal of 95% match rate shall indicate that the contractor must continue to reconcile, verify and match address data by various methods of fieldwork, database processing, and QA/QC.

Independent Accuracy Verification
Positional accuracy verification will be conducted by independent source selected by DEM.

Documentation
A written project report must be prepared, signed, and sealed by the licensed land surveyor in responsible charge of the roadway centerline survey project. At the conclusion of the project a final report must be submitted.
Included as a minimum should be the following:

- A narrative description of the project that summarizes the project conditions, objectives, methodologies, and conclusions.
- Discussion of the observation plan, equipment used, satellite constellation status, and observables recorded.
- Description of the data processing performed. Note the software used, the version number, and the techniques employed.
- Identify any data or solutions excluded from the network with an explanation as to why it was rejected.
- A formal NSSDA report and worksheet for horizontal and vertical positional accuracy for each county.

Data files, including observations, computed baselines, adjustments, and coordinates must be submitted with the project report.

B. Emergency Service Zone Polygon Requirements

The responder zone polygon layer will include all local Emergency Service Zones (ESZ) throughout the state along with accurate attribution. All emergency service zone polygons will be created using data from the individual counties' 911 coordinators. Responder zones not included in roadway centerline layer must also be included in this layer. This information must be obtained from County Emergency Managers and 911 Coordinators.

The minimum requirements for the emergency service zone polygon layer attribution should closely follow the GIS specifications outlined in the NENA Recommended Formats & Protocols For ALI Data Exchange, ALI Response & GIS Mapping document. See http://www.nena9-1-1.org/9-1-1TechStandards/Standards_PDF/NENA%2002-010.PDF for more information.

The following table describes suggested attribute names and field lengths.

All field names must be 10 characters or less.

Exhibit B

Field	Description	Data Type	Length	Domain
ESN	Emergency Service Number	Decimal	5	
CITY_FIPS	FIPS code for responder city.	Decimal	5	YES
CNTY_FIPS	FIPS code for county.	Decimal	3	YES
PSAP_ID	Code identifying the PSAP associated with the assigned ESN.	Decimal	4	
RESP_ID	Emergency Service Agency ID defined with the first 3 digits as the County FIPS code and the last 4 digits as the locally assigned agency code.	Decimal	7	
UPDATED	Date of last update. Format: CCYY-MM-DD	String	10	
DATA_SRCE	Indicates Original Source of Data or any subsequent updates.	String	15	

Domain Codes

Field	Domain
CITY_FIPS	Federal Information Processing Standards Publication 55-3
CNTY_FIPS	Federal Information Processing Standards Publication 6-5.

C. Emergency Responder Locations Point Layer Requirements

The responder location point layer will include all local first responder locations (and type of responder) throughout the state. This information must be obtained from County Emergency Managers and 911 Coordinators. All responder locations must be associated with their appropriate zone. If a responder location is responsible for more than one zone there will be multiple points per location.

All emergency responder locations will be created using data from the individual counties' 911 coordinators. Responder locations from cities not included in roadway centerline layer must also be included in this layer.

The minimum requirements for the emergency responder location point layer attribution should closely follow the GIS specifications outlined in the NENA Recommended Formats & Protocols For ALI Data Exchange, ALI Response & GIS Mapping document. See http://www.nena9-1-1.org/9-1-1TechStandards/Standards_PDF/NENA%2002-010.PDF for more information.

The following tables describe suggested attribute names and field lengths. Please note that the use of a domain on selected fields is not optional.

All field names must be 10 characters or less.

Exhibit C

Field	Description	Data Type	Length	Domain
RESP_TYPE	Type of responder. Law, Ambulance, or Fire	String	1	YES
CITY_FIPS	FIPS code for responder city.	Decimal	5	YES
CNTY_FIPS	FIPS code for county.	Decimal	3	YES
ESN	Emergency Service Number	Decimal	5	
RESP_ID	Emergency Service Agency ID defined with the first 3 digits as the County FIPS code and the last 4 digits as the locally assigned agency code.	Decimal	7	
RESP_NAME	Name of Responder/Description	String	35	
CONT_INFO	Contact Information	String	25	
ADDRESS	Responder street address (Full)	String	45	
CITY	Responder City	String	35	
STATE	FIPS Code designated for State	Decimal	2	YES
TELEPHONE	Telephone # of responder. Format: NPA-NXX-XXXX	String	12	
UPDATED	Date of last update. Format: CCYY-MM-DD	String	10	
DATA_SRCE	Indicates Original Source of Data or any subsequent updates.	String	10	

Domain Codes

Field	Domain
RESP_TYPE	L = Law F = Fire E = Emergency Medical Service
CITY_FIPS	Federal Information Processing Standards Publication 55-3
CNTY_FIPS	Federal Information Processing Standards Publication 6-5.
STATE	Federal Information Processing Standards Publication 5-2.

D. Attribute Accuracy Requirements

The final delivered layers shall meet a 98% manual/visual attribute accuracy check to be performed by the DEM or their designee. 50 randomly selected line features that are geographically dispersed will be used for testing. Failure to reach the goal of 98% match rate shall indicate that the contractor must continue to reconcile, verify and match address data by various methods of fieldwork, database processing, and QA/QC.

E. Metadata Requirement

Metadata must be provided for all GIS data and must be FGDC compliant. Follow the State of North Dakota GIS Hub standards. See http://www.state.nd.us/gis/mapsdata/metadata/ for more information.

9. Considerations for Phase II Wireless

A consideration in developing these layers is a future need to address tracking emergency response to calls placed from Phase II Wireless. Address how the proposed solution will accommodate this need. Identify potential problems.

10. Questions

All questions from vendors regarding the RFP or relating to this project must be submitted to DEM for clarification by April (Suggest 10 days before deadline), 2004. Questions will be answered at the mandatory conference. Questions must be in writing and mailed, faxed, or e-mailed to:

Russ Timmreck
Operations Action Team
North Dakota Division of Emergency Management
P.O. Box 5511
Bismarck, ND 58506-5511
Telephone: 701-328-8150
Fax: 701-328-8181
E-Mail: rtimmreck@state.nd.us

11. Mandatory Conference

A mandatory conference will be held on April 21, 2004, at 9:00 a.m. CDT in the Conference Room at the Division of Emergency Management, Fraine Barracks Lane Bldg 35, Bismarck ND 58504. Only vendors attending the conference will be eligible to submit a proposal in response to this RFP.

Addendums and answers to questions will be sent only to vendors who attended the mandatory conference. The addendum addressing questions raised during the conference will be issued no later than April 28, 2004.

12. Proposal Requirements

Vendors must respond to this document with a detailed proposal for the creation of the GIS layers specified herein. The vendor must show the capability of supplying multiple statewide, highly accurate, seamless GIS datasets that are to be used in a statewide emergency response application. Proposal must completely describe the solution being offered and address all the requirements of this RFP.

A. Administrative Data. Proposal shall include a cover sheet that provides the following information:

- A contact person, address, telephone number, fax number, and e-mail address.
- Signature: The vendor submitting the proposal response or that vendor's duly authorized agent or representative must sign the proposal response manually in ink. The name and title of the person signing the proposal response must be typed or printed below the signature.

B. Methodology. The vendor must show the capability of supplying multiple statewide, highly accurate, seamless GIS datasets that are to be used in a statewide emergency response application. State in your own words your understanding of the scope of the project and all deliverables of the project.

- Vendors must respond to each item listed in this RFP. Restate the RFP item number and section title and then respond to the requirement. Describe in detail the methodology that will be used to obtain the accuracy requirements of the project.
- Describe how the proposed solution meets the requirements of the department
- Provide an overview of your solution and its capabilities and limitations in the following areas:
  - Spatial accuracy.
  - Attribution accuracy.
  - Routing accuracy.
  - Address matching.
  - Maintenance considerations.
- What value-added functionality the proposed solution provides
- What features require modifications or customization, and what requirements cannot be met?
- Include any technologies, tools, documentation, areas of emphasis, and approach to quality control and quality assurance.
- Indicate the methods of generation for all GIS layers, QA/QC procedures, and testing methods.
- Describe any software to be purchased to utilize these layers in a CAD application.
- Manufacturer literature/manuals may be included but may not be substituted for a written description.
- Supply titled and described sketches on how common and complex centerline and node location issues will be resolved. Examples include but are not limited to, location of a centerline on multi-lane roads (e.g., Hwy 83), on/off ramps, cul-de-sacs, turning lanes, one-ways, cloverleaf's, etc. Specific attributes that are required for these situations as they apply to routing and addressing must also be described.
- A consideration in developing these layers is a future need to address tracking emergency response to calls placed from Phase II Wireless. Address how the proposed solution will accommodate this need. Identify potential problems.

C. Management Strategy.

Provide a comprehensive description of the management plan for project implementation, including:

- Provide a Quality Control/Quality Assurance (QC/QA) Program that will be used on the project. The QC/QA program shall identify the team members, their responsibilities, and stages of development at which each is to be responsible.
- Describe the method of communication that will be used to communicate project progress to DEM. Also include the type of information that will be contained in those reports.
- Describe the level of skills and involvement required from DEM to assist in the execution of this project.
- Project coordination and involvement with 911 coordinators and emergency managers will be a critical component of a successful mapping project. Describe your proposed plan to liaison with county emergency managers and other political subdivisions as identified by ND DEM to obtain information and accommodate those users within the scope of this project.

D. Maintenance & Support, Warranty & Guarantees. Describe how the contractor will provide:

- Maintenance and support.
- Length of initial warranty.
- Guarantees of Accuracy.

E. Proposed Schedule and Ability to Meet Time Requirements

- Provide your proposed project schedule along with milestones. The vendor must demonstrate verifiable ability to do this within a compressed time frame.

F. Budget Requirements. This project is funded from a Federal Homeland Security grant monies that expire on April 15, 2005. Address the following:

- Provide a cost proposal for completing the work described herein within the budgetary limitations.
- Detail your plans for billing. **Please Note:** Acceptance criteria must be met before full payment is released to the vendor. 10% of any payment will be withheld until DEM is satisfied with the accuracy of all the layers. This includes but is not limited to the criteria set forth in 8A, 8B, 8C, and 8D.

- Describe any options for cost sharing arrangements as a condition for sharing the data collected herein.

G. Experience, Qualifications, and Past Performance
- Briefly describe why you believe you are the best contractor for this project.
- Provide DEM your organizational and financial information, including (but not limited to) company size, organization, ownership, number of employees, revenues for the last fiscal year, financial statements, commitment to services to government clients, and other appropriate information which is relevant to this project. Please note this information is subject to North Dakota's open records law.
- Identify all key personnel that will be used in a supervisory capacity on this project. Please include their qualifications and any past experiences as related to a project of this scope.
- Provide recent and current work for the State of North Dakota performed by your company.
- Provide recent, current, and projected workloads of your firm.
- Provide a list of three or four companies for whom your organization currently does or has recently performed similar services and would accept follow-up calls from DEM as part of a reference check. Please provide contact names, organization title or responsibility, address and telephone numbers.

H. Options
- Optional components or services. Describe any options, not specifically mentioned in the proposal.

13. Alternate Proposals

The state will consider alternate proposals. All alternate proposals must clearly be marked "Alternate Proposal" and describe the deviation from these requirements. The DEM seeks the most effective solution that delivers layers that are both spatially correct and accurately attributed. The requirements set forth in this document will accomplish this task, but the DEM will consider other methods of collection and attribution. These include but are not limited to rectifying current centerline inventories or using conflation to increase accuracy (spatially and/or attribution). Any alternate proposal must meet the accuracy requirement of ± 0.5 meters or less for the roadway centerline. All alternate proposals must justify why the alternate proposal achieves the same or better results with improved efficiency. Describe the advantages of the alternate proposal (e.g. cost/benefit analysis, dollars saved, time-saving, maintenance issues), list any drawbacks of changing the initial requirements (as stated herein), and any other documentation that the vendor deems relevant.

14. Proposal Submission

Original and Five copies of the proposal are to be submitted by the proposal due date. All proposals must be submitted in a sealed envelope or package and delivered to the address below not later than the date and time indicated on the front of this Request for Proposals. No late responses will be accepted. The vendor is solely responsible for ensuring proposals are received at the required place by the required time. The vendor is solely responsible for all costs associated with preparing their response to this request for proposals. All proposals must be addressed and delivered to:

RFP FOR GIS BASE MAP LAYERS
North Dakota Division of Emergency Management
P.O. Box 5511
Bismarck, ND 58506-5511

15. Selection Criteria

Proposals received will be evaluated by a committee selected by ND DEM according to the criteria stated herein. The DEM reserves the right to limit the interviews to a minimum of three firms whose proposals most clearly meet the RFP requirements. Firms not selected to be interviewed will be notified in writing.

The attached Request for proposal Evaluation Summary Form contains the criteria that will be used to select the three persons or firms determined to be most qualified on the basis of the information available prior to the interviews. The selection committee will evaluate each individual or firm selected for interviews in accordance with N.D.C.C. 54-44.7.

16. Sequence of Events
The following will be the sequence of events in the qualification and selection process:

RFP Released	March 29, 2004
Question Deadline	April 14, 2004
Vendors' Conference	April 21, 2004
Proposals Due	May 5, 2004, 2:00 p.m. CDT
Contract Award	May 19, 2004
Final Deliverables Due	October 3, 2005

17. Date of Commencement/Completion
Project work must not commence until a contract has been fully executed by both DEM and the contractor(s).

18. Completeness of Information, Future Negotiations, and Right To Reject
The State of North Dakota reserves the right to seek or require verification, validation, or clarification of data and information presented in the proposals.

The State of North Dakota reserves the right to hold discussions with vendors determined to be reasonably susceptible for award and allow the revisions of proposals and submission of best and final offers based on those discussions. After the receipt of best and final offers, the state will finalize the evaluation and select the successful offeror.

The State of North Dakota reserves the right to enter into a supplementary agreement to have the vendor selected, perform any additional work not currently assigned.

The State of North Dakota may reject any or all proposals submitted in response to this RFP or cancel this RFP any time if it is deemed to be in the best interest of the State. The State of North Dakota may waive minor deviations or errors in a vendor's proposal if it is determined by the State of North Dakota that the deviation or error does not materially affect the requirements of this RFP.

19. Patent or Copyright Infringement
The contractor(s) must defend, protect, and hold harmless the State of North Dakota, its officers, agents, and employees, against all suits at law or inequity and from all damages, claims, or demands for actual or alleged infringement of any patent or copyright by reason of the use of the equipment, software, or supplies provided by the contractor(s).

20. Open Records Law
Trade secrets or proprietary information, if they are recognized as such and protected by law, may be withheld if clearly identified in the proposal by the contractor.

Contractor understands that, except for disclosures prohibited by law, the State must disclose to the public upon request any records it receives from the Contractor. Contractor further understands that any records which are obtained or generated by the Contractor under this contract, except for records that are confidential as provided by law, may under certain circumstances, be open to the public upon request under the North Dakota open records law. Contractor agrees to contact the State immediately upon receiving a request for information under the open records law and to comply with the State's instruction on how to respond to the request.

21. Work Product, Equipment, and Materials
Unless otherwise agreed to by and between the parties in the contract, all work product, equipment, or materials created or purchased under this contract belong to the State and must be delivered to the State at the State's request upon termination of this contract. Contractor agrees that all materials prepared under this contract are "works for hire" within the meaning of the copyright laws of the United States and assigns to State all rights and interests Contractor may have in the materials it prepares under this contract, including any right to derivative use of the material. Contractor shall execute all necessary documents to enable State to protest its rights under this section.

All project data will become property of the DEM upon completion of the project. The State of North Dakota is owner of the data that is to be shared with other entities such as state agencies, counties, cities, and tribal

governments. The contractor must agree to release all rights of ownership, copyright, and distribution rights of the data to the State of North Dakota.

22. Issuing Division
The selection of the vendor will be made by a committee selected by the DEM.

23. Contract
A contract will be negotiated by and between ND DEM and the successful offeror. ND DEM will name a project manager to administer the resultant contract. Any additional work must be negotiated between the project manager and contractor.

24. Project Definitions

- ALI – Automatic Location Identification - The automatic display at the PSAP of the caller's telephone number, the address/location of the telephone and supplementary emergency services information.
- CAD – Computer Aided Dispatch - A computer based system which aids PSAP telecommunicators by automating selected dispatching and record keeping activities.
- Conflation – It is a set of procedures that aligns the features of 2 geographic data layers and then transfers the attributes of one to the other.
- Coverage – A digital version of a map layer forming the basic unit of vector data storage for ARC/INFO. A set of thematically associated data considered as a unit. A coverage usually represents a single theme such as soils, streams, roads, or land use.
- DEM – Division of Emergency Management
- Domain - The range of possible values for an attribute.
- ESN – Emergency Service Number - A number assigned to specific geographic area within which all E911 calls are routed to one specific PSAP and the residents of the area are served be the same police, fire, and emergency medical agencies.
- ESZ – Emergency Service Zone - The geographic area within which all E911 calls are routed to one specific PSAP and the residents of the area are served be the same police, fire, and emergency medical agencies.
- ESRI – Environmental Systems Research Institute - See http://www.esri.com/ for more information.
- FIPS – Federal Information Processing Standards
- GIS - A Geographic Information System is an organized collection of computer hardware, software, geographic data, and personnel designed to efficiently capture, store, update, manipulate, analyze, and display all forms of geographically referenced information.
- GPS - Global Positioning System is a tool for determining your location on the earth. It is based on a constellation of 24 satellites sending very precise time signals. Differences between these signals allow the GPS unit to triangulate its location.
- HARN - High Accuracy Reference Network
- MSAG – Master Street Address Guide - A listing of all streets and number ranges within a 9-1-1 service Guide (MSAG) area. The streets and address ranges are assigned routing codes, or emergency service numbers (ESNs), to enable proper routing of 9-1-1 calls.
- NDGPS - Nationwide Differential Global Positioning System
- NDDOT - North Dakota Department of Transportation
- NSSDA – National Standard For Spatial Data Accuracy - implements a well-defined statistic and testing methodology for positional accuracy of maps and geospatial data derived from sources such as aerial photographs, satellite imagery, or maps. Accuracy is reported in ground units. The testing methodology is a comparison of a dataset's coordinate values with coordinate values from a higher accuracy source for points that represent features readily visible or recoverable from the ground.
- NENA – National Emergency Number Association
- OPUS - National Geodetic Survey On-line Positioning User Service - OPUS allows users to submit their GPS data files in RINEX format to NGS, where the data will be processed to determine a position using NGS computers and software.
- PAGES – Software used by National Geodetic Survey On-line Positioning User Service for processing.
- PSAP – Public Safety Answering Point - A facility equipped and staffed to receive 9-1-1 calls. A Primary PSAP receives the calls directly. If the call is relayed or transferred, the next receiving PSAP is designated a Secondary PSAP

- Roadway Centerline – It is defined as the center of all through-lanes; these are the driving lanes typically used by through traffic. It is a representation of a road with the spatial position following the approximate center of the road.

Request for Proposal Evaluation Summary Form

Name of RFP:		
RFP Number		
Vendor Being Evaluated:		
Evaluator Name:		
Date:		
Technical Evaluation *(Maximum **100 Points**)*	Maximum Points by Category	Score
A. Location of the Firm:	***5***	
B. Methodology Used for the Project:	***40***	
C. Management Plan for the Project:	***15***	
D. Maintenance, Support, Warranty, and Guarantees	***5***	
E. Past Performance, ability of professional personnel, related experience on similar projects, recent and current work for the agency.	***25***	
F. Willingness to meet time and budget requirements; recent, current, and projected workloads of the persons of firm	***10***	
Total		

Listing of County Emergency Managers

County/ Tribal	Manager	Work Phone (701)	EOC (701)	Fax (701)	Address	City	Zip	E-Mail
Adams	Erickson, Dean	567-2235	567-4598	567-4622	Box 589	Hettinger	58639	derickson@state.nd.us
Barnes	Duppler, Norma	845-8510	845-8510	845-8548	230 4th St NW #204	Valley City	58072	masterofdisaster67@hotmail.com
Benson	Hager, Gene	473-5496		473-5423	Box 184	Minnewaukan	58351	bensondem@state.nd.us
Billings	Lavelle, Hallie	623-4876	623-4323	623-4761	Box 247	Medora	58645	emerg@midstate.net
Bottineau	Baumann, Bill	245-6180	228-2740	245-6185	Box 426	Westhope	58793	billandcool@juno.com
Bowman	Pearson, Dean	523-3129	523-3129	523-5443	Box 453	Bowman	58623	dapearson@state.nd.us
Burke	Mahlum, Dave	377-2962	377-2962	377-2177	Box 276	Bowbells	58721	dmahlum@pioneer.state.nd.us
Burleigh	Senger, Mary	222-6727	222-6727	221-6804	2301 Univ Dr, Bldg 21	Bismarck	58504	msenger@state.nd.us
Cass/Fargo	Overland, Kym Rogness, Dave	241-8138 239-6790	241-5858	241-8125 241-5717	637 NP Avenue PO Box 488	Fargo Fargo	58102 58107	info@cassfargoem.org Info@cassfargoem.org
Cavalier	Morse, Stephen I	256-5130	256-2555	256-2566	Box 751	Langdon	58249	cvcounty@utma.com
Dickey	Rekow, Gerald	349-3249	349-3242	349-4639	PO Box 215	Ellendale	58436	jrekow@state.nd.us
Divide	Clemens, Larry	925-5713		925-5780	Box 39	Noonan	58765	lclemens@nft.net
Dunn	Scott, Donna E	573-4612		573-4444	Box 104	Manning	58642	dscott@pioneer.state.nd.us
Eddy	Lies, Robert	947-2562 8-10AM 947-5099 10-5PM	947-5515	947-2279	524 Central Ave	New Rockford	58356	rlies@pioneer.state.nd.us
Emmons	Svalen, Del	254-4486	254-4411	254-4322	PO Box 338	Linton	58552	asvalen@state.nd.us
Foster	Townsend, Dale	652-2252		652-2173	Box 45	Carrington	58421	dtownsen@pioneer.state.nd.us
Golden Valley	Vondall, Carole	872-3917 10AM- 2PM	872-4733	872-4383	P.O. Box 851	Beach	58621	micalyn@iwon.com
Grand Forks	Campbell, Jim	780-8213	746-2685	746-2536	122 S 5th St #21	Grand Forks	58201	jcampbel@grandforksgov.com
Grant	Ozbun, Jo Ann	622-3944	622-3944	622-3717	7050 Hwy 31	Flasher	58535	jmo@westriv.com
Griggs	Hook, Robert S	797-3311	797-2202	797-3311	Box 574	Cooperstown	58425	rhook@state.nd.us
Hettinger	Hardmeyer, Ilene	824-4227	824-4227	824-2717	336 Pacific Avenue	Mott	58646	ihardmeyer@state.nd.us
Kidder	Houghton, Carla	475-2735	475-2422	475-2298	Box 318	Steele	58482	choughto@state.nd.us
LaMoure	Ballinger, Rick	883-5301	883-5720	883-5833	20 4th Ave NE	LaMoure	58458	rballinger@state.nd.us
Logan	Engelhardt, Steve	754-2495	754-2298	754-2597	Box 5	Napoleon	58561	sengelha@state.nd.us
McHenry	Hanretty, Mary	537-0805	537-5633	537-5969	PO Box 57	Towner	58788	mhanrett@state.nd.us
McIntosh	Rudolph, DeLoris	288-3906		288-3671	Box 326	Ashley	58413	rudybek@bektel.com
McKenzie	Samuelson, Jerry	444-6853	444-6853	444-3916	Box 1036	Watford City	58854	jsamuelson@4eyes.net
McLean	Schreiner, Todd	462-8541	462-8103	462-3542	Box 1108	Washburn	58577	tschreiner@ state.nd.us
Mercer	Sorenson, Dick	745-3695	745-3333	745-3205	Box 39	Stanton	58571	rsorenso@state.nd.us
Morton	Lapp-Harris, Tammy	667-3307	667-3307	667-3296	210 2nd Ave NW	Mandan	58554	tlapp@state.nd.us
Mountrail	Wing, Gene "Skip"	628-2063	628-2975	628-3063	Box 421	Stanley	58784	ghw@midstatetel.com
Nelson	Young, Sharon	247-2472		247-2943	210 B Ave W., Suite 302	Lakota	58344	syoung@state.nd.us

Oliver	Jons, Sally	794-3404	794-3450	794-3476	Box 215	Center	58530	sbjons@westriv.com
Pembina	Ault, Becky	265-4849		265-4642	308 Courthouse Dr #7	Cavalier	58220	rault@pioneer.state.nd.us
Pierce	Veach, Duane D	776-5399	776-5245	776-7703	240 2nd St SE	Rugby	58368	dveach@state.nd.us
Ramsey	Heisler, Tim	662-7001	662-7002	662-7011	524 4th Ave, # 14	Devils Lake	58301	theisler@co.ramsey.nd.us
Ransom	Johnson, Teresa	683-5823	683-5823	683-5158	PO Box 1024	Lisbon	58054	tejohnso@state.nd.us
Renville	Johnson, Renae M	756-6386	756-6386	756-7158	PO Box 68	Mohall	58761	rjohnson@state.nd.us
Richland	Hendrickson, Denise	642-7788	642-7777	642-7776	LEC 413 3rd Ave N	Wahpeton	58075	dhendric@pioneer.state.nd.us
Rolette	Hoffman, DuWayne	477-3156		477-3484	PO Box 688	Rolla	58367	dhoffman@pioneer.state.nd.us
Sargent	Hanson, Sandra	724-6241		724-6244	Box 177	Forman	58032	shanson@pioneer.state.nd.us
Sheridan	Houston, Wayne	363-2368		363-2953	Box 545	McClusky	58463	whouston@pioneer.state.nd.us
Sioux	Landeis, Frank	854-3481		854-3854	Box L	Fort Yates	58538	flandeis@pioneer.state.nd.us
Slope	Frederick, Dick	879-6329		879-6278	Rt 2 Box 18	Amidon	58620	outlaw@amidon.ctctel.com
Stark	Kostelecky, Gary	456-7605	456-7600	456-7602	Box 130	Dickinson	58601	grkost@state.nd.us
Steele	Beckman, Wayne	524-2742		524-1715	Box 171	Finley	58230	wbeckman@pioneer.state.nd.us
Stutsman	Bergquist, Jerry	252-9093	252-7087	252-7087	LEC 205 6th St SE	Jamestown	58401	jbergqui@state.nd.us
Towner	Halverson, Larry	968-4366		968-4368	RR1 850 9th St	Cando	58324	tcem@gondto.com
Traill	Crocker, Mike	636-4510		636-4308	Box 279	Hillsboro	58045	mcrocker@pioneer.state.nd.us
Walsh	Nelson, Brent	352-2311	352-2311	352-5072	638 Cooper Avenue	Grafton	58237	banelson@state.nd.us
Ward	Mellum, Thom	857-6534	857-1534	857-6520	Box 907	Minot	58702	thom@www.co.ward.nd.us
Wells	Roehrich, Tammy	547-2537	547-2537	547-3188	PO Box 114	Fessenden	58438	troehric@state.nd.us
Williams	Lodw ig, Edward	577-7707	577-7707	577-7705	LEC 512 4th Ave E	Williston	58801	edl@co.williams.nd.us
Three Affiliated Tribes	Whitman, Cliff	627-4781		627-4748	404 Frontage Road	New Town	58763	cwhitman@mhanation.com
Spirit Lake Sioux	Hairychin, Ila	766-1706		766-1713	PO Box 359	Ft Totten	58335	edfplan@stellarnet.com
Standing Rock Sioux	Buffalo Boy, Robert	854-7560		854-3841	PO Box 516	Ft Yates	58538	RBuffaloBoy@standingrock.org
Turtle Mountain Chippewa	Blue, Anita	477-2600		477-9322	PO Box 900	Belcourt	58316	ablue62@aol.com jayjgourneau@yahoo.com